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OBSERVATIONS ON THE PREDATION ABILITIES OF *NEOACTINOLAIMUS AGILIS* (DORYLAIMIDA : ACTINOLAIMOIDEA)

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Abstract: Observations were made on the prey catching and feeding mechanisms, rate of predation on different species of plant parasitic nematodes and factors influencing predation by *Neoactinolaimus agilis*. Predation occurred mostly upon contacts with the prey individuals. *N. agilis* paralysed its prey by holding the prey with everted onchia and lip region, puncturing cuticle with the odontostyle and disorganizing the internal organs of prey. The attacks were indiscriminate occurring all over the body. Oesophagus pulsated at regular intervals and secreted oesophageal secretions for extra corporeal digestion. At the end of feeding the whole of the prey contents were ingested and only the cuticle left unconsumed by the predators. The rate of predation remained same over a period of eight days. *N. agilis* preferred the second stage juveniles of *Meloidogyne incognita*, *Anguina tritici* and *Tylenchulus semipenetrans*. *Paralongidorus citri*, *Rotylenchus robustus* and *Helicotylenchus indicus* were killed the least. *N. agilis* failed to either kill or injure any individual of *Hoplolaimus indicus* or *H. mangiferae*. Predation increased with the increase in prey number but decreases with the increase in concentration of agar. Maximum predation occurred at 25-30° C. Temperatures lower or higher than these declined predation significantly.

Key words- *Neoactinolaimus agilis*, predation, behaviour, predators, prey.

TWO NEW SPECIES OF TYLENCHOIDEA FROM UTTAR PRADESH

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Abstract: Two new tylenchid species are described from Uttar Pradesh. *Boleodorus constrictus* n. sp. is characterized by a distinct narrowing of body beyond vulva and anus, lateral fields with crenate margins, metacarpus not distinctly demarcated from procorpus, reduced spermatheca and hooked tail. *Ditylenchus domesticus* n. sp. is characterized by a large body, lateral field with six lines, non-valvate metacarpus, basal bulb with flat to irregular base, post-uterine sac 1.10-1.57 vulval body diameters long, a cylindrical tail with rounded to subclavate terminus and bursa enveloping half of tail.

Key words- Tylenchoidea, *Boleodorus constrictus* n. sp., *Ditylenchus domesticus* n. sp.

BIOCHEMICAL VARIATIONS IN RESISTANT AND SUSCEPTIBLE BRINJAL VARIETIES INFECTED BY ROOT KNOT NEMATODE, *MELOIDOGYNE INCOGNITA*

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Abstract: Investigation on biochemical changes were made in two brinjal varieties viz. Pusa purple long (susceptible) and Ghatikia white (resistant) inoculated with root-knot nematode, *Meloidogyne incognita*. Five amino acids like L-cystine, L-serine, L-tryptophan, L-leucine and L-isoleucine were found to be common in both the varieties. Higher concentration of various amino acids and amides were detected in each variety upon nematode inoculation except L- tryptophan. The content of chlorogenic acid, total sugar, peroxidase and catalase activities were higher in inoculated samples than their healthy counter parts. However, the catalase activity was reduced in inoculated susceptible sample.

Key words- Brinjal, biochemical changes, *Meloidogyne incognita*, resistance.

EFFECT OF N.P.K. FERTILIZERS ON *MELOIDOGYNE INCOGNITA* INFESTATION AND PLANT GROWTH IN TOMATO

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Abstract: Among the nitrogen (CAN), phosphorous (Super phosphate) and potassium (Muriate of potash) fertilizers, applied (at recommended dose) singly or in combinations showed plants with potash alone, were heavily infested with *Meloidogyne incognita*, followed by phosphorous alone and both in combination. Minimum infestation was recorded with the application of all the three fertilizers in combination. Shoot weight was maximum in treated plants and minimum in plants with only potash. Though, shoot length and root weight were not found significantly influenced with fertilizer applications, root weight responded similar to shoot weight.

Key words- NPK fertilizers, *Meloidogyne incognita*, tomato

SEASONAL FLUCTUATION, VERTICAL AND HORIZONTAL DISTRIBUTION OF *XIPHINEMA BASIRI* IN THE SOIL

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Abstract: The study on the distribution pattern of the nematode in the soil in field condition around the roots of west Indian cherry trees revealed that the nematode population was consistently high at 10-15 cm depth and at 120 cm to 180 cm away from the tree trunk. Observations made in the microplots of mulberry have also shown the presence of high population of *X. basiri* at 10-15 cm depth from the soil surface. The data gathered on the population prevailed under field conditions in the soils around west Indian cherry trees for a period of one year indicated two peak periods of increased nematode population, the first being in the months of November to February and the second in April and May. In the soils of mulberry maintained under microplot condition, similar trend was noticed viz., two peak periods of nematode population in the months of November to January and April to June.

Key words- Distribution of nematodes, horizontal, vertical and seasonal.

DEVELOPMENT OF ROOT-KNOT NEMATODE, *MELOIDOGYNE INCOGNITA* AND MORPHOMETRICS AS INFLUENCED BY CERTAIN TOMATO CULTIVARS

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Abstract: Fourteen different tomato cultivars belonging to four different species were inoculated with single egg mass population of *Meloidogyne incognita* in order to determine the extent of morphometric and allometric variations. The different cultivars influenced females dimensions to a varied degree. Smaller females were produced on *Lycopersicon esculentum* cv NMR-1, cv Coldset and *L. lycopersoides* which were moderately resistant to nematode attack. Moderate size of females on cv AC-142, cv AC-238, cv S-12, cv Punjab Chhuhara, cv Punjab Kesri, *L. pimpinellifolium* and large females on *L. esculentum* cv sioux, cv Co-1 and Co-2 which were highly susceptible to nematode attack.

Key words- *Meloidogyne incognita*, morphometrics, tomato cultivars.

INTENSITY OF NEMATODE INFESTATION IN MANDARIN ORANGE CROP IN NILGIRIS HILL REGION

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Abstract: Six genera of plant parasitic nematodes viz., *Tylenchulus semipenetrans*, *Helicotylenchus* spp., *Rotylenchulus reniformis*, *Xiphinema basiri*, *Hemicriconemoides* sp. and *Pratylenchus coffeae* were found associated with mandarin orange in Nilgiris district. Among them the citrus nematode *T. semipenetrans* was the predominant nematode pest with absolute frequency and relative frequency of 90.52 and 37.07 per cent respectively in soil and 75.78 and 33.02 per cent respectively in root. Among the seven villages surveyed Kengarai and Kolagiri villages in Kotagiri taluk recorded severe infestation. High degree of decline and dieback symptoms were observed in the infested areas.

Key words- *Tylenchulus semipenetrans*, absolute frequency, relative frequency

EFFECT OF THE BURROWING NEMATODE, *RADOPHOLUS SIMILIS* ON SUGARCANE

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Abstract: Pathogenicity of *Radopholus similis* studied on sugarcane var. Co-449 revealed that the damage was maximum at the highest initial inoculum level of 10,000 nematodes per plant and the reduction was highly significant with respect to cane weight (16.07%), leaf weight (54.98%), root weight (65.13%) and root volume (80.02%). A minimum of 100 nematodes/plant in 12,000 cm³ soil was found to be the damage threshold level of *R. similis* on sugarcane. Reduction in the mass of feeder roots was the most significant effect on the plant.

Key words- *Radopholus similis*, pathogenicity, sugarcane.

SEASONAL POPULATION FLUCTUATION BEHAVIOUR OF PLANT PARASITIC NEMATODES IN CARRIBEAN STYLO

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Abstract: Seasonal population fluctuation behaviour of the three plant-parasitic nematodes, *Basiriolaimus seinhorstii*, *Pratylenchus thornei* and *Tylenchorhynchus vulgaris* was studied in Jhansi. Average population density peaks of these nematodes during March and September were 0.6, 1.8, 2.4 and 1.0, 2.8, 3.1 nematodes per ml. soil respectively. During February and May falls were 0.2, 0.7, 1.0 and 0.1, 0.2, 0.2 nematodes per ml soil respectively. Nematode population fluctuations were affected by mean temperature, mean relative humidity, rainfall and plant growth. *B. seinhorstii* was least affected by environmental stresses. Due to highly adapted parasitic mode of life *P. thornei* competes well with other nematodes in July. Population of *T. vulgaris* was inversely affected by rainfall.

Key words- *Carribean stylo*, *Basiriolaimus seinhorstii*, *Pratylenchus thornei*, *Tylenchorhynchus vulgaris*, seasonal population fluctuation behaviour.

MANAGEMENT OF ROOT-KNOT NEMATODES (*MELOIDOGYNE INCOGNITA* AND *M. JAVANICA*) IN TOMATO BY BARE ROOT DIP TREATMENT

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Abstract: Management of root-knot nematode, *Meloidogyne incognita* and *M. javanica* by using nematicides as a soil and bare root dip application in tomato crop, revealed that 1000 ppm root dip treatment of carbosulfone, phosphomidon and triazophos gave significantly higher yield over control. Among soil treatments 2.0 kg a.i./ha dose of carbofuran and phorate gave the highest yield and reduced root knot galling indices over control.

Key words- *Meloidogyne incognita*, *M. javanica*, tomato, bare root dip.

VARIATION IN PATHOGENICITY OF *MELOIDOGYNE INCOGNITA* ON CHICKPEA AT DIFFERENT INOCULUM DENSITIES*

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Abstract: Survey conducted in different chickpea growing areas of Karnataka indicated the occurrence of root-knot nematode with a variation in population levels among the districts, with a mean inoculum level of 0.12 larvae per g soil under field conditions. An inoculum level of 2 larvae per g soil was found as optimum damaging threshold level on cultivar Annegiri-1 under green house conditions. Increase in the level of larval inoculum resulted in proportional decrease in plant growth and an increase in root-knot disease on chickpea

Key words- Pathogenicity, *Meloidogyne incognita*, chickpea

EFFECT OF MARIGOLD (*TAGETES ERECTA*) INTERCROPPED WITH BRINJAL IN DIFFERENT SOIL TYPES ON DISEASE INTENSITY OF ROOT - KNOT NEMATODE (*MELOIDOGYNE JAVANICA*)

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Abstract: Intercropping of marigold (*Tagetes erecta*) with brinjal in root-knot nematode (*Meloidogyne javanica*) infested different soil types exhibited better plant growth characters. Final nematode population was reduced upto 40.5 percent over initial level owing to intercropping of *Tagetes* with brinjal. Total number of egg masses per plant and eggs per eggmass were minimum in clay soil. However, maximum increase (82.1 per cent) in nematode population over initial level occurred when brinjal was grown alone in sandy soil followed by sandy loam and clay soil. Application of carbofuran @ 1 Kg a.i./ ha though increased the plant growth characters and reduced nematode population, yet marigold intercropping with brinjal was significantly superior over carbofuran treatment.

Key words- Intercropping, marigold, brinjal, *M. javanica*

AMPLIMERLINIUS QUERCINUS N.SP. (NEMATODA: MERLINIINAE) FROM SPAIN

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Abstract: *Amplimerlinius quercinus* n.sp from around the roots of *Quercus pyrenaica* in Spain is described. This species is characterised by a 1.7-2.1 mm long, slender body, 5-6 lip annules, 39-40 μ m long stylet, 53-61 tail annules, C' ratio of 2.5-3.6 and slightly knobbed gubernaculum.

Key words- *Amplimerlinius*, new species, *Quercus pyrenaica*.

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LARVAL EMERGENCE FROM EGG SACS OF *HETERODERA CAJANI* IN EXTRACTS OF CAKES IN VARIOUS MEDIA AND THEIR EFFECT ON COWPEA

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Abstract: Inhibition of larval emergence from the egg-sacs of *Heterodera cajani* was observed when they were dipped in various extracts of neem, mahua, mustard, linseed cakes and Sawdust for 24 and 48 hrs. These organic amendments were also found to decrease the cyst population and increase the plant growth characters. Among various amendments neem and sawdust were better in relation to above characteristics.

Key words- Organic amendments, *Heterodera cajani*, control.

EFFECT OF INITIAL INOCULUM LEVELS OF *MELOIDOGYNE* SPP. ON SOME CUCURBITACEOUS CROPS

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Abstract: *The effect of initial inoculum levels of Meloidogyne spp. was investigated in some cucurbitaceous crops in 15 cm size earthen pots, each containing 1 kg. sterilised soil. It was observed that 100 larvae of M. javanica per pot as initial inoculum in bittergourd and 1000 larvae in smooth gourd, ridge gourd and squash melon significantly reduced the growth parameters. Initial inoculum of 1000 of M. incognita also significantly reduced the growth parameters. Galling and nematode reproduction was directly related to initial inoculum level.*

Key words: *Meloidogyne* spp., initial level, cucurbitaceous crops.

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POPULATION DENSITIES OF PLANT PARASITIC NEMATODES ON DIFFERENT CULTIVARS OF BANANA

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Abstract: A field experiment was conducted to study changes in densities of nematode population associated with 15 cultivars of banana. Dwarf jahaji, Rubusta, Malbhog and Chenichampa were favourable for *Helicotylenchus dihystra*. Athia was least favourable.

Key words: Banana, cultivar, *Helicotylenchus dihystra*.